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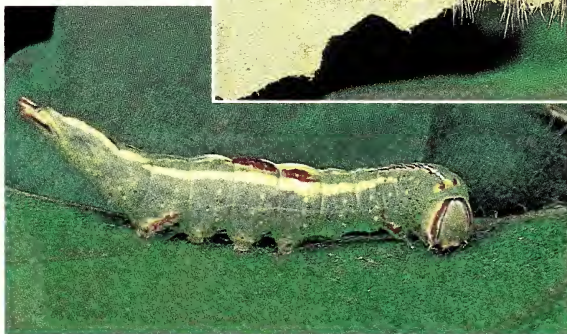
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Technology
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Eastern Forest
Caterpillars

Common Caterpillars of Eastern Deciduous Forests



David L. Wagner, Julie J. Henry, John W. Peacock,
Michael L. McManus, and Richard C. Reardon

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Common Caterpillars of Eastern Deciduous Forests

David L. Wagner and Julie J. Henry

Department of Ecology and Evolutionary Biology, University of Connecticut, Storrs

John W. Peacock and Michael L. McManus

USDA Forest Service, Northeastern Forest Experiment Station, Northeastern Center for Forest Health Research, Hamden, Connecticut

Richard C. Reardon

USDA Forest Service, National Center of Forest Health Management, Morgantown, West Virginia

Although the caterpillar (or larva) of Lepidoptera (moths and butterflies) is the life stage that is most commonly observed feeding upon or defoliating trees and plants, there are relatively few published sources available that can assist in the identification of even the most-common species. This is all the more surprising because caterpillars are often more conspicuous, sometimes more easily identified, and always more abundant than the moth or butterfly (adult) stage. This pamphlet was prepared to facilitate identification of common caterpillars encountered in eastern deciduous hardwood forests and to foster a greater appreciation for the diversity in color and form that is found in caterpillars.

The hardwood forests of the eastern United States are home to more than 2,000 species of Lepidoptera, perhaps a third of which have caterpillars that feed externally on foliage. Yet only a minute fraction of this rich fauna is commonly seen. The vast majority of lepidopterous larvae are either too secretive in habit or occur in such low numbers that they are rarely encountered.

We have selected known pest or outbreak species that often co-occur with the gypsy moth in mixed forests. Other species such as silkworms, butterflies, and those with conspicuous caterpillars such as the woolly bear are included because they are often the subject of public inquiry.

For each species, we provide both a common and scientific name. Where different common names exist for the caterpillar and adult of the same insect, we use the name that is applied to the caterpillar. For example, the caterpillar of *Dryocampa rubicunda* is called the

green-striped mapleworm, but the species is perhaps more familiar to many entomologists as the rosy maple moth. Brief descriptions mention diagnostic characters and other similar appearing species. **The most frequently used terms helpful in identification are provided in figure 1.** For a few groups, it may be necessary to examine the **crochets** (hooklets) on the fleshy prolegs (figures 2 and 3). **Consult the glossary (page 28) for unfamiliar terms.** Few serious color field guides to caterpillars have been attempted. This publication hopes to fill that gap for an audience that would include many entomologists, foresters, naturalists, interpretive specialists, extension agents, and hobbyists.

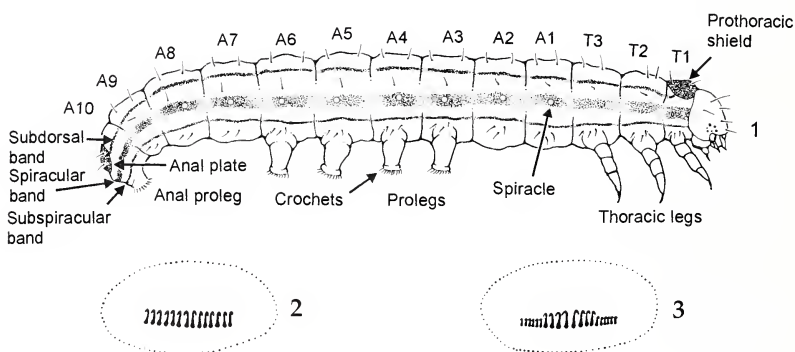


Figure 1—Diagrammatic sketch of a caterpillar.

Figure 2—Arrangement of crochets (hooklets) on midabdominal proleg of a noctuid.

Figure 3—Arrangement of crochets (hooklets) on midabdominal proleg of an arctiid.

Host Plants

Although caterpillars may feed on a single plant genus or species (monophagy), many species associated with hardwood forests feed upon a wide array of trees and shrubs (polyphagy). For polyphagous species, we list examples of favored host genera. Host preferences frequently vary over the range of an insect—a species that in one area appears to be a specialist, using only one or two closely related plant genera, may feed on a wide array of plants across its geographical range. Although host association data may occasionally aid the identification of larvae, you will likely find caterpillars occurring on hosts that are not listed here. Moreover, many caterpillars wander over plants on which they do not feed, especially just before pupation.

Broods

For each species, we list the months when the caterpillar stage is most likely to occur over most of the eastern United States. Note that caterpillars in the Deep South often appear several weeks before the times provided here, and there may be one or more additional generations each year. Conversely, to the north, caterpillars may occur later and there may be only one generation each year.

Caterpillar Mimicry and Defense

The color patterns of caterpillars that feed on exposed foliage are often distinct, even in closely related species. In some genera, such as *Acronicta*, *Datana*, and *Dasychira*, the caterpillars are far more distinctive than adults. The markings and shapes of caterpillars may change between consecutive larval molts—note the difference in appearances of the young and mature caterpillars of the spicebush swallowtail (pg. 24) and gypsy moth (pg. 11). Our photographs are typical for mature larvae. Colors may vary across a species' geographical range, and in some loopers (or inchworms), the color of the caterpillars may vary dramatically with the population density. For example, in both the spring cankerworm and elm spanworm, caterpillars from low-density populations tend to be green, whereas those from outbreak populations are often considerably darker.

Color and adornment may greatly affect a caterpillar's ability to survive predation by birds. For example, caterpillars with prominent red, orange, and yellow colors (commonly offset with white and black) are avoided by many birds. They also may gain protection from hairs or spines or by retaining toxins that they acquire from their host plants. A few species—the io moth, buck moth, and saddleback caterpillar—bear spines that can deliver painful stings. Tussock moths (including the gypsy moth) have glands on two abdominal segments that manufacture noxious compounds that are loaded onto the body hairs. When handled, the variable oakleaf caterpillar may release enough formic acid to cause skin blisters.

Caterpillars palatable to birds tend to be camouflaged, blending masterfully into forest backgrounds. Many green species mimic foliage; some even have false leaf damage incorporated into their coloration. Others that rest on branches or tree trunks by day may resemble twigs and bark. Several imitate the look of fresh, wet bird droppings. Others actively collect debris and attach it to their backs so that they resemble anything but a caterpillar.

Palatable and unpalatable caterpillars may have strikingly different behaviors. Palatable species often feed at night and are “neat” feeders that are quick to move off damaged leaves. An extreme example of tidiness is provided by sphinx and underwing caterpillars, which “cover up their tracks” by clipping away leaves upon which they have fed by chewing through the petiole. In contrast, unpalatable species are often active during the day and frequently rest on or near damaged leaves. Both the coloration and habits of protected species make them obvious and more likely to be noted even by casual observers. As such, more of this type are presented in this booklet.

Rearing, Identification, and Preservation

If definitive identifications are required, it may be necessary to rear caterpillars to their adult stage, that is, to moths or butterflies. Whenever possible, secure and rear several larvae of a species because parasites and pathogens kill many caterpillars before they reach maturity. Before pupation, it may be helpful to add a half-inch layer of lightly moistened (horticultural grade) sphagnum. Sphagnum tends to discourage the growth of molds and slowly gives up moisture to the rearing container, but overly damp sphagnum may result in fungal infections. Sphagnum or some other pupation medium is important for species that normally pupate in soil. An extended period of near-freezing temperatures is needed to ensure emergence of the species that do not overwinter as adults. Many helpful suggestions for collecting and rearing caterpillars can be found in Covell’s (1984) *Field Guide to the Moths of Eastern North America*.

It is a good idea to preserve examples of late-instar larvae as vouchers, that is, references, in case subsequent rearing efforts prove futile. Preserve these caterpillars by dropping them into water that has been brought to a boil and leaving them submerged for a few minutes or until the bodies are fully distended. Larvae should then be transferred to 70% ethanol. Less satisfactory results may be obtained by killing caterpillars directly in ethanol or isopropyl (rubbing) alcohol, although such specimens often discolor and are rarely fully distended. Freeze-drying larvae will yield rather shrunk, albeit identifiable, specimens. Preservation techniques for caterpillars are reviewed in Stehr’s (1987) *Immature Insects*. Because fluid preservation always results in the loss of color, especially greens and yellows, larvae should also be photographed to record their colors.

Silkworms and Royal Moths (Family Saturniidae)

These medium to large caterpillars usually have conspicuous long setae, "horns," or stinging spines. Pest species are often gregarious in early instars. The caterpillars are most often encountered as they are walking over the ground in search of a pupation site.

Orange-striped oakworm

(*Anisota senatoria*)

Charcoal with eight orange-yellow stripes. Head black. Second thoracic segment with long, black spinulose horns. Feeding gregariously in early instars, then becoming solitary. Hosts: oaks. Larva: August to October, one generation.



Spiny oakworm

(*Anisota stigma*)

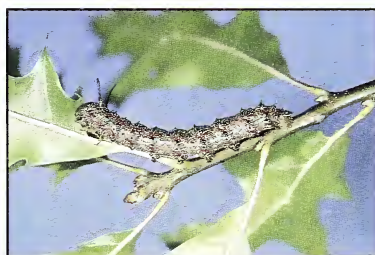
Light brown, often flushed with pink, speckled with white. Head orange brown. Second thoracic segment with long, black spinulose horns. Gregarious feeder in early instars, then solitary. Hosts: oak and hazel preferred. Larva: August to October, one generation.



Pink-striped oakworm

(*Anisota virginiensis*)

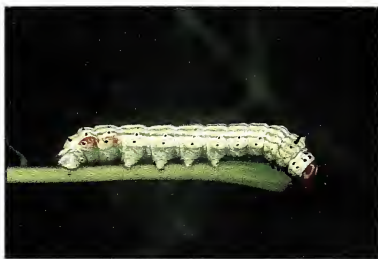
Pink with broad dorsal and lateral charcoal stripes, finely speckled with white. Head orange brown. Second thoracic segment with long, black spinulose horns. Gregarious in early instars, then solitary. Hosts: various hardwoods, especially oak. Larva: August to October, one generation.



Green-striped mapleworm

(Dryocampa rubicunda)

Pale green with longitudinal striping. Head bright reddish brown. Second thoracic segment with black, spinulose horns. Hosts: occasional pest of maple, but also on oak and other plants growing with maple. Larva: June to September, two generations in South, one northward.



Hickory horned devil

(Citheronia regalis)

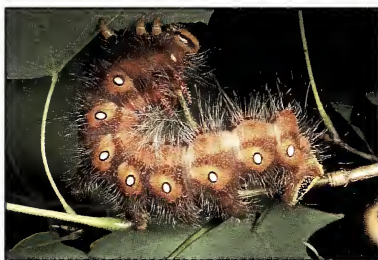
Our largest and perhaps most spectacular caterpillar. Heavily armored with long stout orange and black dorsal horns on thoracic segments. Abdomen with shorter stout black spines. Hosts: often hickory, walnut, and sweet gum, but also many forest hardwoods. Larva: July to September, one generation.



Imperial moth

(Eacles imperialis)

Bright green, brown, or pink with long white hairlike setae. First two thoracic segments with short yellow spinulose horns. Spiracles conspicuously encircled with white. Hosts: pines and many hardwoods. Larva: July to September, one generation.



Luna moth (*Actias luna*)

Body bright green with pink or black spotting and numerous, short pale setae. Spiracles pink or red. Intersegmental areas yellow. Last segment with oblique yellow line above proleg. Hosts: many forest hardwoods. Larva: May to September, one generation in North, two in South.



Polyphemus moth (*Antheraea polyphemus*)

Bright green, with silvery spot below each seta and oblique yellow lines running through spiracles on abdominal segments. Caterpillar of luna moth similar but with reddish spot below each seta and faint yellow longitudinal stripe passing through spiracles. Hosts: widely polyphagous on hardwoods. Larva: April to October, one generation in New England, up to three southward.



Io moth (*Automeris io*)

Pale green with tufts of greenish spines over body. **Spines inflict painful stings that cause swelling.** Abdominal segments with conspicuous brick-red and white bands running below spiracles. Gregarious in early instars then becoming solitary. Hosts: wide range of hardwoods and even broadleaf grasses and corn. Larva: July to October, two generations in South, one northward.



Buck moth (*Hemileuca maia*)

Variable from nearly black to mostly cream in color, dappled with few to many yellowish flecks. Body densely covered by prominent tufts of branched spines. **Spines inflict painful stings that cause swelling.** Gregarious in early instars then becoming solitary. Hosts: oaks, but also other plants. Larva: June to August, one generation.



Hornworms (Family Sphingidae)

Hornworms, the larvae of sphinx or hawk moths, are large caterpillars with a dorsal horn on the eighth abdominal segment (absent on a few species). Body setae are absent or inconspicuous. The anal prolegs are flattened and form a triangle below the anal plate. Like the silkworms, the caterpillars are most frequently encountered as they wander over the ground in search of food or a pupation site. When handled, many thrash violently from side to side as well as regurgitate over or nip at their would-be captors.

Waved sphinx

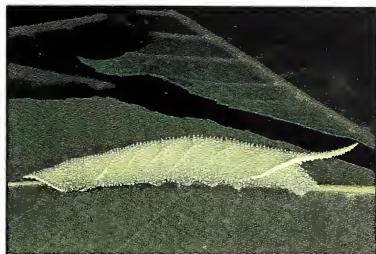
(*Ceratomia undulosa*)

Greenish (usually) or reddish with seven pairs of oblique lateral bands; first two bands weakly differentiated. Head with pink band running from eyes to crown. Horn pinkish. Hosts: ash preferred. Larva: April through October, two generations in South, one in North.



Walnut sphinx
(*Laothoe juglandis*)

Green (usually) or red with numerous minute raised white spines or granules. Body with seven pairs of oblique lateral yellow lines, often bearing reddish blotch at dorsal end. Anal horn tinted with red. Markings, especially with regard to red pigmentation, highly variable. Head pointed with lateral yellow line from eyes to crown. Capable of making mouselike squeak when handled—presumably by forcing air out through the spiracles. Hosts: walnut, hickory, beech, and chestnut preferred. Larva: May to October, two generations in South, one in North.



Tent Caterpillars (Family Lasiocampidae)

Tent caterpillars are densely hairy and often brightly colored. Their setae are not clustered onto tufts, being more evenly scattered across the body, and the crochets are biordinal. The early instars are gregarious. Those of the eastern tent caterpillar form communal, silken nests in which the larvae shelter, hence their name.

Eastern tent caterpillar
(*Malacosoma americanum*)

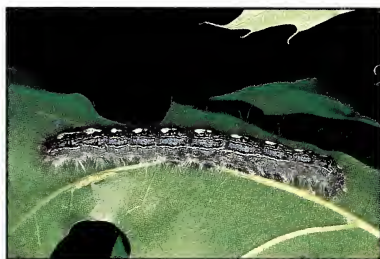
Orange to black with continuous, white, dorsal stripe. Bluish spots above spiracles. Setae orange yellow. Head blackish. Hosts: common on cherry and related plants but also on most deciduous trees and shrubs. Larva: April to June, one generation.



Forest tent caterpillar

(*Malacosoma disstria*)

Body bluish with dorsal line broken into two white diamondlike spots per segment, frontmost spot at least twice the size of the trailing spot. Thin subdorsal and lateral orange stripes. Setae whitish at the tips. Head bluish. Although gregarious through the fourth instar, this tent caterpillar does not fashion a tent! Hosts: wide range of forest and orchard species. Larva: April to June, one generation.



Tussock Moths (Family Lymantriidae)

Tussock caterpillars are handsomely patterned with dense hairs that arise from distinct tufts or tussocks. All have defensive glands on the dorsum of the sixth (usually) and seventh abdominal segments. Many people are allergic to the body hairs of tussock moths, especially if the hairs are brought into contact with the eyes or sensitive areas of the skin. The crochets are uniordinal. The caterpillars are notably catholic in diet, consuming the foliage of a wide array of shrubs and trees.

Yellow-based tussock moth

(*Dasychira basiflava*)

Gray, yellow, or white with prominent paired anterior and posterior black "lashes." Dorsum with black tufts on first and eighth abdominal segments. Larva highly variable in color and closely similar to others in genus. Hosts: oak and hickory. Larva: May to June, one generation.



White-marked tussock moth

(*Orgyia leucostigma*)

Brightly colored with red, yellow, white, and black. Dorsum of abdomen black. Head red to orange-brown; thoracic shield uniformly red. Dorsal glands bright red. Hosts: many hardwoods and conifers. Larva: May to September, two generations.



Gypsy moth (*Lymantria dispar*)

Early instar (top): Body mostly black with irregular yellowish markings; head capsule black.

Late instar (bottom): Body mostly dark with numerous light speckles; head light brown with black mottling. Dorsum of thoracic and first two abdominal segments with paired blue spots below black setal tufts;

abdominal segments three to eight with paired reddish spots below black setal tufts. **Hairs causing some people extreme discomfort, especially if brought into contact with eyes or sensitive skin.** Hosts: many forest hardwoods; even conifers during later instars. Larva: June to July, one generation.



Cutworms and Owlet Moths (Family Noctuidae)

Noctuids comprise the largest family of Lepidoptera, with more than a quarter of all described species. Many are robust, smooth-"skinned" (cutworm-like), with brown and green camouflage coloration and inconspicuous setae. Others have abundant setae that make them appear hairy. Given the size and diversity of the family, however, there are many exceptions (see page 14 for hairy owlet moths). The crochets of noctuid caterpillars are usually of a single length (figure 2, pg. 2).

Mottled gray cutworm

(Abagrotis alternata)

Brown and tan checkered body with faint dorsal line and pale subdorsal and spiracular lines. Area above spiracular lines dark, contrasting with pale subspiracular color. Head with brown and black netlike mottling and two short black bands to either side of midline that extend to thorax. Spiracles blackened. Hosts: oak, cherry, hickory, and other forest hardwoods. Larva: May to June, one generation.



Copper underwing

(Amphipyra pyramidoides)

Green with yellow and white lateral line that passes through the abdominal spiracles. Eighth segment distinctly humped. Hosts: many trees and shrubs. Larva: May to June, one generation.



Ilia underwing (*Catocala ilia*)

Member of large genus with many similar species. Elongate, tapering at ends, barklike in coloration, often resting on branches and trunks away from foliage. Most underwings have bumps on dorsum of abdominal segment eight and bear a fringe of light hairlike setae above prolegs; venters with purplish spots that stand out against pale underbellies. Venter of *ilia* underwing decidedly pinkish. Hosts: oaks; other underwings on members of the oak, hickory, willow, legume, and rose families. Larva: May to June, all with one generation.



Green fruitworm

(*Lithophane antennata*)

Pale green with continuous yellowish dorsal line and two broken subdorsal lines and broad spiracular band. Setae arising from whitish spots. Head green. One of many species referred as "green fruitworm." Hosts: cherry, oak, and probably other trees and shrubs. Larva: May and June, one generation.



Ruby quaker

(*Orthosia rubescens*)

Dark brown above, with broad white band running through spiracles and pale green below. Dorsal and subdorsal lines broken into white spots. Spiracles white and surrounded by brownish patches. Head dark brown with pale markings. Hosts: many shrubs and trees. Larva: May to June, one generation.



Colorful zale (*Zale minerea*)

Elongate, resting with venter pressed to substrate. Body mottled and lined with white, black, brown, and orange. Anterior prolegs reduced. Dorsum with darkened raised bumps on first and larger reddish protuberances on eighth abdominal segment. Pale area above second proleg. Head brown and mottled with black. Hosts: cherry, oak, and other forest hardwoods. Larva: May to October, evidently with partial second generation.



American dagger moth (*Acronicta americana*)

Clothed in long white or yellowish setae, with paired black lashes on first and third abdominal segments, and single medial lash on eighth segment. Head black. Hosts: many forest hardwoods. Larva: June to October, one generation in North, but two southward.



Smeared dagger moth

(*Acronicta oblinita*)

Strikingly, albeit quite variably, colored, some with prominent dorsal red and most with lateral yellow blotches. Dorsal setae often reddish. Second thoracic and last two abdominal segments with one or two pairs of very long, fine white dorsal hairs. Head black; spiracles white. Hosts: many low-growing plants, shrubs, and forest hardwoods. Larva: May to October, two generations.



Tiger Moths (Family Arctiidae)

These caterpillars tend to have conspicuous coloration and habit. Their bodies are covered with numerous long spines or setae, which may be grouped into lashes. The species presented here bear hairlike setae with numerous minute branches or barbs. Their crochets are in a linear series with the outermost ones reduced in size (figure 3, pg. 2).

Pale tussock moth

(*Halysidota tessellaris*)

Dirty tan to yellow-brown with long paired white and black lashes on third thoracic segment. Smaller black lashes project forward beyond head from second thoracic segment, and backward from eighth abdominal segment. Hosts: oak, willow, poplar, hickory, and other forest and shade hardwoods. Larva: July to October, one generation.



Fall webworm (*Hyphantria cunea*)

The messy tents of this gregarious caterpillar are conspicuous in late summer and fall. Body covered with long, silky pale setae. Variable in color from pale green to dark brown, often with mottled lateral areas; dorsum darkened. Setae arising from raised yellow, orange, and black bumps. Spiracles white. Hosts: over 100 forest hardwoods.

Larva: beginning in May in the South (up to four generations); August to October, northward (one generation).



Hickory tussock moth

(*Lophocampa caryae*)

Distinctively handsome white and black caterpillar. Dorsum of first eight abdominal segments with low black tufts down mid-line; and conspicuous paired black lashes on abdominal segments one and seven. Gregarious in early instars. **Hairs allergenic to some people.**

Hosts: hickory, walnut, and related plants preferred but also most hardwood species.

Larva: July to September, one generation.



Woolly bear (*Pyrrharctia isabella*)

Familiar densely hairy black and red-orange caterpillar often seen crossing roads. Widths of orange and black bands vary, generally with black portions giving way to orange as caterpillar matures. Hosts: grasses and forbs. Larva: overwinters, seen September to May and again in summer, two generations.



Prominents (Family Notodontidae)

These caterpillars are commonly encountered because they tend to stay on foliage by day and take several weeks to complete development. Many species are gregarious. They are often strikingly colored or shaped, with angular or knoblike protuberances, some with numerous long, fine hairlike setae. All bear secondary setae above the prolegs.

Yellow-necked caterpillar

(*Datana ministra*)

Anterior portion of prothorax ("neck") yellow behind black head; body black with four conspicuous yellow or white stripes and numerous fine white hairlike setae. Several species of *Datana* occur in eastern hardwood forests, and all are gregarious. Hosts: many trees and shrubs; commonly oaks. Larva: August to September, one generation.



Saddled or maple prominent

(*Heterocampa guttivitta*)

Bright green with two pale subdorsal stripes and distinctive brown or purple V-shaped saddle atop second and third abdominal segments. Head flattened with lateral reddish band margined outwardly with yellow. Several species of *Heterocampa* occur in eastern hardwood forests, and all have rather variable color patterns. Hosts: especially sugar maple, beech, and apple. Larva: July to August, two generations in South, one generation northward.



Variable oakleaf caterpillar

(*Lochmaeus manteo*)

Body green, dull red, or brown, quite variable, with two whitish subdorsal lines often filled with yellow around setal bases. Dorsal area of thoracic segments reddish purple to brown; warts on first and eighth abdominal segments often red. Head large with conspicuous lateral bands, inner one dark and outer one whitish. **When disturbed, larva may release formic acid.**

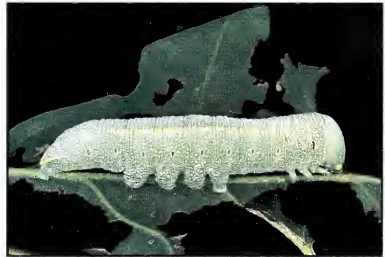
Lochmaeus bilineata larvae are closely similar, often found on elm. Hosts: many forest species and apple, but especially oak. Larva: June to September, two generations in South, one northward.



Green oak caterpillar

(*Nadata gibbosa*)

Stout, pale green body with large head and faint subdorsal stripe, and yellow crescent-like flange on rump. Mandibles bright yellow with black tips. Hosts: many broadleaf trees including cherry and maple, but especially oak and chestnut. Larva: July to October, with partial second generation in fall.



Red-humped caterpillar

(*Schizura concinna*)

Head and first abdominal segment bright red. Rows of alternating black, yellow, and white wavy stripes above spiracle. Gregarious feeder. Hosts: blueberry, hickory, maple, oak, sweet gum, willow, and many other plants. Larva: July to September, one generation.



Red-humped oakworm

(*Symmerista canicosta*)

Brightly marked with yellow, black, and white stripes; two subdorsal yellow stripes separated by five black and four thin white stripes. Head and eighth abdominal segment bright orange. Adult and larva closely similar to white-headed prominent (*Symmerista albifrons*). Larva of *S. canicosta* with black dorsal lines to either side of midline more wavy than adjacent lines. Early instars gregarious, then feeding individually. Host: oak, basswood, sugar maple, and other trees. Larva: July to September, one generation.



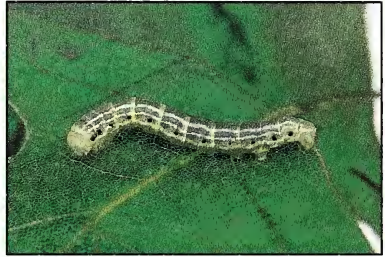
Loopers or Inchworms (Family Geometridae)

This large family includes several important pest species. As a rule, loopers are superb background-matchers, mimicking foliage, sticks, petioles, and other plant parts. All but a few are readily distinguishable because they have only one pair of fully developed midabdominal prolegs, usually on the sixth abdominal segment. Being so endowed, these caterpillars tend to “loop” as they walk, rather than crawl. Forest species are often broadly polyphagous on either hardwoods or softwoods.

Fall cankerworm

(*Alsophila pometaria*)

Green (in low-density populations) to brown (in high-density populations). Green individuals with pale striping; darker individuals with median dorsal black stripe. Fifth abdominal segment with very small pair of prolegs. Hosts: new foliage of many hardwoods. Larva: May and June, one generation.



Elm spanworm

(*Ennomos subsignaria*)

Green, brown, or black with yellow to red head and rump. Dorsum with three pairs of small tubercles. Hosts: beech, oak, hickory, elm, ash, and maple are preferred but larvae defoliate many hardwoods during outbreaks. Larva: May to early July, one generation.



Linden looper (*Erannis tiliaria*)

Yellow with numerous thin, wavy dorsal brown lines above spiracles or entirely yellow (rarely). Head and rump light orange brown. Hosts: broadleaf trees. Larva: May to July, one generation.



Purplish-brown looper
(*Eutrapela clemataria*)

Purple-brown with swollen second thoracic segment, marked with orange or red. Darkened protuberances on fourth and eighth abdominal segments. Setal bases often light orange. Hosts: commonly maple, but also many other forest species. Larva: June to September, two generations.



Canadian melanolophia
(*Melanolophia canadaria*)

Green with somewhat darker blue-green dorsal line faintly edged with white. Continuous white subdorsal lines and faint, broken spiracular line. Posterior of each segment tinted yellow. Head green with orangish cast. Hosts: hardwoods. Larva: May to September, one generation in North, two southward.



The half-wing (*Phigalia titea*)

Violet to gray brown with numerous fine, wavy black lines. Setae on raised shiny black warts. Head tan with black mottling. Hosts: especially oak, maple, basswood, hickory, and elm. Larva: May to July, one generation.



Butterflies

Butterfly larvae usually are solitary and occur in such low numbers that they are seldom encountered, yet their striking colors and shapes make them some of the more interesting forest caterpillars. Because four families are treated here, we are unable to provide a meaningful diagnosis for this heterogenous group.

Juvenal's dusky wing (*Erynnis juvenalis*) (Family Hesperiidae)

Larvae of hesperiids (skippers) are immediately recognizable by their swollen heads and constricted "necks." Head and body of this species yellow to brown-green; head with orange spots to either side. Hosts: oak. Larva: June to September, one generation, with a partial second.



Banded hairstreak (*Satyrium calanus*) (Family Lycaenidae)

North American lycaenids (blues, coppers, and hairstreaks) have sluglike larvae with numerous short setae. Body of this species is variable in color, ranging from green to tan or dark brown, with faint subdorsal stripes. Over most of its range, the banded hairstreak co-occurs with several similar hairstreaks. Hosts: oak, walnut, and hickory. Larva: May to June, one generation.



Tawny emperor (*Asterocampa clyton*) (Family Nymphalidae)

Highly distinctive, with “crown of thorns” head and granulose body, prominently striped with yellow and white bands; dorsal stripe continuous, dark green or blue in color. The closely similar hackberry butterfly has dorsal line broken into yellowish spots. Larvae gregarious when young but later becoming solitary. Hosts: hackberry. Larva: July to October, one generation in North, two southward.



Mourning cloak (*Nymphalis antiopa*) (Family Nymphalidae)

Blackish with whirls of long, shiny black spines. Dorsum with paired red spots on last thoracic and first seven abdominal segments. Prolegs red. Hosts: usually willow or elm. Larva: June to July, one generation.



Spicebush swallowtail (*Papilio troilus*) (Family Papilionidae)

Early instars (top) resemble moist bird droppings, dark above with white saddle toward front half of body, eighth segment also mostly white; thoracic eyespots inconspicuous. Later instars (bottom) green with large eyespots on third thoracic segment, followed by paired yellow spots on first abdominal segment, and conspicuous blue spots below setae. Laterally with broad spiracular yellow band. Hosts: sassafras and spicebush. Larva: June to October, at least two generations.



Microlepidoptera and Sawflies

Most small Lepidoptera (or Microlepidoptera) feed within silken cases or shelters, tied tips, or leaf rolls. A few groups, such as the slug caterpillars (Family Limacodidae), feed externally on leaves. Still others bore into shoots, mine leaves, form galls, etc. A few common Microlepidoptera or their shelters are shown here to highlight the different forms and habits of forest caterpillars.

In eastern North America there are several families of foliage-feeding sawflies (Order Hymenoptera) that are commonly encountered alongside caterpillars on forbs, shrubs, and trees. Although superficially resembling Lepidoptera, sawfly larvae may be readily distinguished from caterpillars by both their behavior and morphological features.

Monkey slug (*Phobetron pithecium*) (Order Lepidoptera, Family Limacodidae)

Most distinctive caterpillar in eastern North America. Densely hairy with three long and three shorter pairs of lateral lobes.

Spines inflict a painful sting.

Hosts: many forest trees and shrubs, especially those with smooth, hairless leaves. Larva: June to October, one generation.



Tortricid leafroller
(*Argyrotaenia quercifoliana*)
(Family Tortricidae)

Several moth families, representing many genera and hundreds of species, roll leaves. Leaf edges or tips are rolled under (usually) or upward and fastened with silk. Shelter shape is often diagnostic. Some species feed within a single roll while others make two or more shelters. Leaf rolls especially common on soft, new growth of spring and early summer foliage.



Gelechioid leaf tier

(*Psilocorsis quercicella*)

(Family Oecophoridae)

Many smaller moths, representing hundreds of species and many families, tie leaves together with silk and feed on the leaf tissue contained within the shelter. The shelter type pictured here, formed by affixing two or more adjacent leaves together, is fashioned by a number of genera, including *Psilocorsis* and *Antaeotricha*. In contrast to many oak-feeding species, oecophorid larvae do well on older foliage.



Casebearer

(*Coleophora leucochrysella*)

(Family Coleophoridae)

Casebearers feed within dense silken cases that are usually less than 15 mm in length. Case shapes are highly diagnostic for species identification.

Coleophorids feed on one or few closely related host plants, although mature larvae will wander and attach their cases to almost any plant or surface prior to pupation.



Leafminer

(*Cameraria macrocarpella*)

(Family Gracillariidae)

Leafminers feed inside the leaf, between the two epidermal layers. Mine shape is highly diagnostic for genus and species identification. Several families represented by hundreds of species are found on eastern trees and shrubs. They tend to be very specific in diet, utilizing but a single plant genus. Members of the genus *Cameraria* always mine the upper surface of leaves.



Sawfly (*Periclista* sp.)

(Order Hymenoptera,

Family Tenthredinidae)

Sawflies have caterpillar-like larvae that feed externally or as leafminers or from galls. They may be readily identified by their single dark lateral “eye” (stemma) and numerous midabdominal prolegs. True caterpillars have 5 or 6 lateral “eyes” (stemma) and no more than 4 pairs of midabdominal prolegs. Sawfly larvae often coil into a tight ball if disturbed. Other species, particularly gregarious ones, arch the head backwards and upwards and wag from side to side when agitated.



Glossary

Anal plate: dorsal hardened area on last (10th) abdominal segment.

Anal prolegs: prolegs arising from the last abdominal segment.

Biordinal: crochets of two distinct (often alternating) lengths.

Crochets: hooklike spines found on the bottom of the abdominal prolegs.

Dorsal: along the back or upper side (**dorsum**) of the caterpillar.

Granulose: grainy, sandlike texture.

Gregarious: occurring in groups; many species are gregarious in early instars, but eventually disperse and become solitary.

Instar: one of the larval stages. Most species have five or six instars preceding the pupal stage.

Lash: setae grouped into long tuft or fascicle.

Lateral: along sides, about at level of spiracles.

Mandible: jaw.

Midabdominal prolegs: prolegs arising from abdominal segments three to seven.

Midventral: along midline of body underside.

Polyphagous: eating plants from more than one plant family.

Prolegs: abdominal fleshy “legs” which bear hooklike spines; usually located on segments 3, 4, 5, 6, and 10.

Prothoracic shield: dorsal plate on first thoracic segment.

Prothorax: first thoracic segment; segment to which head attaches.

Setae: hairlike projections from the body.

Spinulose: bearing numerous minute spines or cuticular outgrowths.

Spiracles: lateral, oval to round openings of respiratory system found on the first thoracic and first eight abdominal segments.

Stemma (stemmata): lateral eye of larval insect.

Subdorsal: to either side of the dorsal midline.

Subspiracular: below level of spiracles and above prolegs.

- Uniordinal:** crochets arising from a single row, and roughly of the same length except at the ends of the row.
- Urticating:** causing itching or burning sensation to skin and eyes.
- Venter:** underside or “belly” of caterpillar.

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